

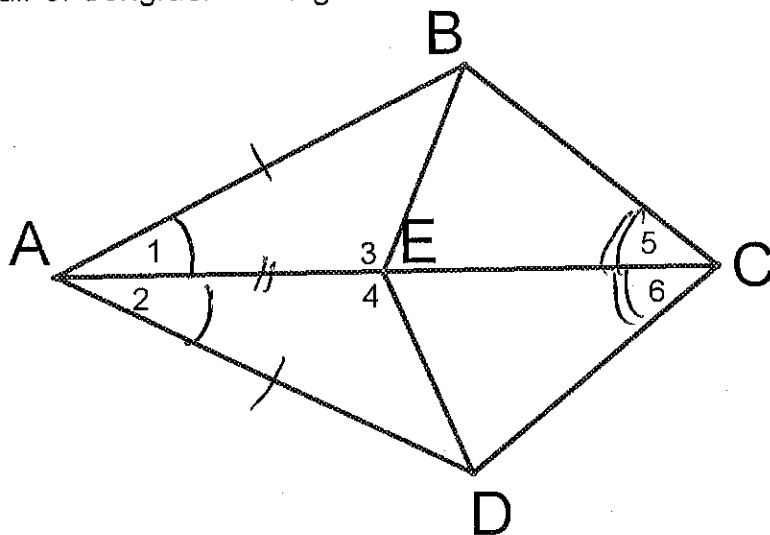
Name Key

Date _____

Using More than One Pair of Congruent Triangles

1. Given: $\angle 1 \cong \angle 2$; $\angle 5 \cong \angle 6$
Prove: $\angle 3 \cong \angle 4$

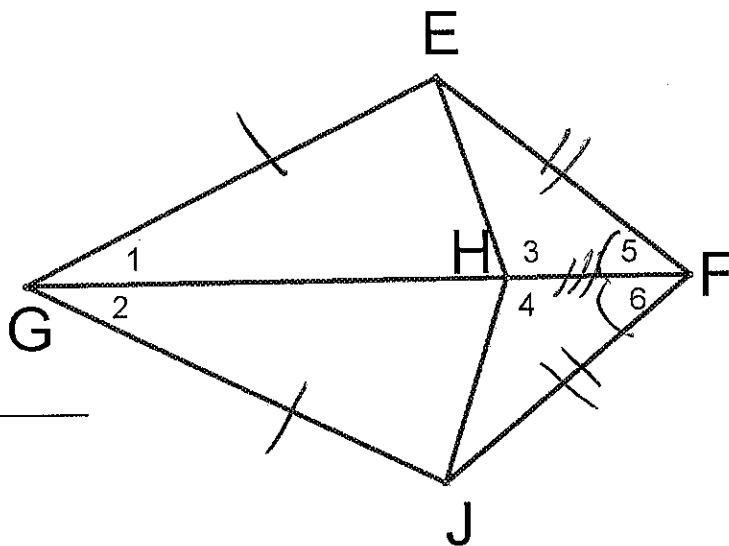
| Statements | Reasons |
|--|----------|
| 1. ~ | 1. Given |
| 2. $\overline{AC} \cong \overline{AC}$ | 2. Refl |
| 3. $\triangle ABC \cong \triangle ADC$ | 3. ASA |
| 4. $\overline{AB} \cong \overline{AD}$ | 4. CPCTC |
| 5. $\overline{AE} \cong \overline{AE}$ | 5. Refl |
| 6. $\triangle ABE \cong \triangle ADE$ | 6. SAS |
| 7. $\angle 3 \cong \angle 4$ | 7. CPCTC |



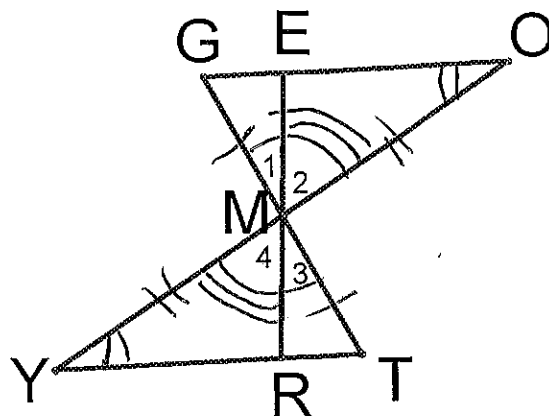
Do Together

2. Given: $\overline{GE} \cong \overline{GJ}$; $\overline{EF} \cong \overline{JF}$
Prove: $\overline{EH} \cong \overline{JH}$

| Statements | Reasons |
|--|----------|
| 1. ~ | 1. Given |
| 2. $\overline{GF} \cong \overline{GF}$ | 2. Refl |
| 3. $\triangle GEF \cong \triangle GJF$ | 3. SSS |
| 4. $\angle 5 \cong \angle 6$ | 4. CPCTC |
| 5. $\overline{HF} \cong \overline{HF}$ | 5. Refl |
| 6. $\triangle EHF \cong \triangle JHF$ | 6. SAS |
| 7. $\overline{EH} \cong \overline{JH}$ | 7. CPCTC |

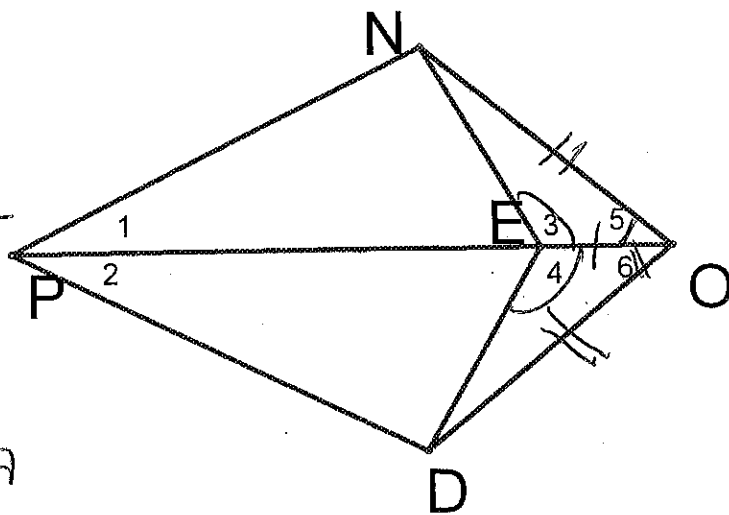


3. Given: M is the midpoint of \overline{GT} and \overline{OY}
 Prove: $EM \cong RM$



| Statements | Reasons |
|--|----------------------------|
| 1. ~ | 1. Given |
| 2. $\angle GMO \cong \angle TMY$ | 2. Vertical \angle s |
| 3. $\overline{GM} \cong \overline{MT}$; $\overline{OM} \cong \overline{MY}$ | 3. def M.P. |
| 4. $\triangle GMO \cong \triangle TMY$ | 4. SAS |
| 5. $\angle O \cong \angle Y$ | 5. CPCTC |
| 6. $\angle 2 \cong \angle 4$ | 6. Vert \angle s \cong |
| 7. $\triangle YMR \cong \triangle OME$ | 7. ASA |
| 8. $\overline{EM} \cong \overline{RM}$ | 8. CPCTC |

4. Given: $\angle 3 \cong \angle 4$; $\angle 5 \cong \angle 6$
 Prove: $\angle PNO \cong \angle PDO$



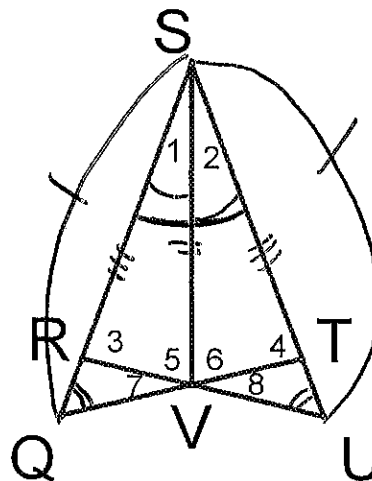
| | |
|---------------------------------------|-------------|
| ① ~ | ① G |
| ② $\overline{EO} \cong \overline{EO}$ | ② Ref |
| ③ $\triangle NEO \cong \triangle DEO$ | ③ ASA |
| ④ $\overline{NO} \cong \overline{DO}$ | ④ CPCTC |
| ⑤ $\overline{PO} \cong \overline{PO}$ | ⑤ Reflexive |
| ⑥ $\triangle PNO \cong \triangle PDO$ | ⑥ SAS |
| ⑦ $\angle PNO \cong \angle PDO$ | ⑦ CPCTC |

#5 can be done many ways. We are going to fill in 3 ways. MARK THE FIGURE EACH TIME!

5. Given: $\angle 1 \cong \angle 2$; $\overline{QS} \cong \overline{US}$

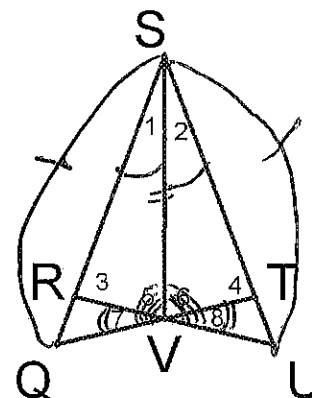
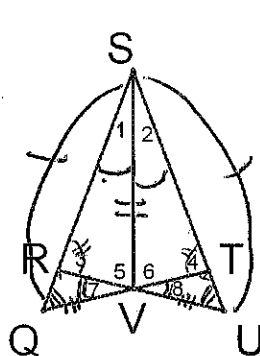
A. Prove: $\angle 5 \cong \angle 6$

| Statements | Reasons |
|--|--------------|
| 1. $\angle 1 \cong \angle 2$; $\overline{QS} \cong \overline{US}$ | 1. Given |
| 2. $\overline{SV} \cong \overline{SV}$ | 2. Refl. |
| 3. $\triangle SVQ \cong \triangle SVU$ | 3. SAS |
| 4. $\angle Q \cong \angle U$ | 4. CPCTC |
| 5. $\angle QST \cong \angle USQ$ | 5. Reflexive |
| 6. $\triangle SRU \cong \triangle STQ$ | 6. ASA |
| 7. $\overline{SR} \cong \overline{ST}$ | 7. CPCTC |
| 8. $\triangle SRV \cong \triangle STV$ | 8. SAS |
| 9. $\angle 5 \cong \angle 6$ | 9. CPCTC |



B.

| Statements | Reasons |
|--|---|
| 1. $\angle 1 \cong \angle 2$; $\overline{QS} \cong \overline{US}$ | 1. G |
| 2. $\overline{SV} \cong \overline{SV}$ | 2. Ref |
| 3. $\triangle SVQ \cong \triangle SVU$ | 3. SAS |
| 4. $\angle 7 \cong \angle 8$ | 4. Vert. $\angle s \cong$ |
| 5. $\angle Q \cong \angle U$; $\overline{QV} \cong \overline{UV}$ | 5. CPCTC |
| 6. $\triangle RQV \cong \triangle TUV$ | 6. ASA |
| 7. $\angle QRV \cong \angle UTV$ | 7. CPCTC |
| 8. $\angle 3$ & $\angle QRV$ are a linear pair | 8. def of linear pair |
| 9. $\angle 3$ & $\angle QRV$ are supplementary | 9. suppl. Thm |
| 10. $\angle 4$ & $\angle UTV$ are a linear pair | 10. suppl. $\angle s \cong$ |
| 11. $\triangle SRV \cong \triangle STV$ | 11. AAS |
| 12. $\angle 5 \cong \angle 6$ | 12. CPCTC |



| Statements | Reasons |
|---|---------------------------|
| 1. $\angle 1 \cong \angle 2$; $\overline{QS} \cong \overline{US}$ | 1. G |
| 2. $\overline{SV} \cong \overline{SV}$ | 2. Ref |
| 3. $\triangle SVQ \cong \triangle SVU$ | 3. SAS |
| 4. $\angle 7 \cong \angle 8$ | 4. Vert. $\angle s \cong$ |
| 5. $m\angle 7 = m\angle 8$ | 5. def of \cong |
| 6. $\angle SVQ \cong \angle SVU$ | 6. CPCTC |
| 7. $m\angle SVQ = m\angle 7 + m\angle 5$ $m\angle SVU = m\angle 8 + m\angle 6$ | 7. \angle Post |
| 8. $m\angle 7 + m\angle 5 = m\angle 8 + m\angle 6$ | 8. Subst. |
| 9. $m\angle 5 = m\angle 6$ | 9. Subtr. |
| 10. $\angle 5 \cong \angle 6$ | 10. def of \cong |